PHAGE-DEPENDENT SUPERPRODUCTION OF BIOLOGICALLY ACTIVE PROTEIN AND PEPTIDES

Abstract of the Disclosure

This invention relates to a method for enhancing the production of biologically active proteins and peptides in bacterial cells by infecting bacterial cells of the producer strain, which contain a plasmid with one or more targeted genes, with bacteriophage λ with or without the targeted gene(s). The targeted genes encoding the biologically active proteins are under the control of a T7 polymerase promoter and the bacteria also are capable of expressing the gene for T7 RNA polymerase. The phage increases synthesis of the targeted protein and induces lysis of the producer strain cells. Super-production is achieved by the combination of the high level of expression achieved from the T7 polymerase promoter and by cultivating the producer strain cells under culture conditions that delay lytic development of the phage. The biologically active proteins and peptides subsequently accumulate in a soluble form in the culture medium as the cells of the producer strain are lysed by the phage.